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# PROBLEMS FOR SOLUTION.

## ALGEBRA.

**113. Proposed by G. B. M. ZERR, A.M., Ph.D., Professor of Mathematics and Science, Chester High School, Chester, Pa.**

Find a square number consisting of 24 figures such that the numbers formed by the first twelve figures and the last twelve figures, respectively, are consecutive, and *vice versa.*

**114. Proposed by ELMER SCHUYLER, B. Sc., Professor of German and Mathematics in Boys' High School, Reading, Pa.**

$$\left.\begin{aligned} bx^3 &= 10a^2bx+3a^3y \\ ay^3 &= 10b^2y+3b^3x \end{aligned}\right\}$$

⁂ Solutions of these problems should be sent to J. M. Colaw not later than February 10.

## CALCULUS.

**104. Proposed by M. E. GRABER, Heidelberg University, Tiffin, Ohio.**

Find the differential equation corresponding to $\sqrt{(1-x^2)}+\sqrt{(1-y^2)} =[a(x-y)]$.

**105. Proposed by CHAS. C. CROSS, Whaleyville, Va.**

From all points in a straight line passing through the center of a given circle tangents are drawn to the circle. If the bases and vertices of all the angles thus formed are made to coincide; required the equation of the curve passing through the langent points.

⁂ Solutions of these problems should be sent to J. M. Colaw not later than February 10.

## MISCELLANEOUS.

**83. Proposed by ALOIS F. KOVARIK, Instructor in Mathematics and Physics, Decorah Institute, Decorah, Iowa.**

Segment's area of a circle whose radius is 5 inches is 28.56 square inches. Find the chord.

**84. Proposed by COOPER D. SCHMITT, A. M., Professor of Mathematics, University of Tennessee, Knoxville, Tenn.**

Prove that $e^{\pi}+e^{-\pi}=2[1+2^2][1+(\tfrac{2}{3})^2][1+(\tfrac{2}{5})^2]$...... ad infinitum.

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